

REMARKS

Reconsideration of this application is respectfully requested. Claims 1 to 9 and 11 to 21 are under active examination. Claim 10 has been cancelled without prejudice.

Support for amendments

Claim 1 has been significantly amended to clarify the nature of the invention and its distinction over the prior art. The changes made are as follows:

The expression "photosensitive *material*" has been replaced by the more correct term "photosensitive *composition*", taking into account that said photosensitive "material" comprises both a first (polymerisable) material "possessing an average number of cross-linkable groups per molecule of at least three ..." and a second material which is a "photoacid generator". Support for the presence of a photoacid generator is provided in previously presented claim 10, now cancelled. For clarity, the polymerisable material and the photoacid generator are now designated by the terms "*first component*" and "*second component*", respectively.

Since the amount of light absorbed by the photosensitive composition depends upon the composition thickness traversed by the light, the claim has been amended to specify that the thickness is "*from 10 to 100 micrometers*". Support for this range is provided on page 2, line 31. Furthermore, since a composition having such a low thickness must necessarily be a film, claim 1 has been further amended to specify that the method comprises exposing "*a film*" of the photosensitive composition to the specified interference pattern.

The claim further specifies that the photoacid generator (the second component of the composition) is selected "... *such that not more than 5% of the radiation ... is*

absorbed therein". Support for this feature is provided on page 3, lines 16 to 17. Since uniformity of illumination would not be achieved if the polymerisable material (the first component of the composition) absorbed much more radiation, it has also been specified in claim 1 that the polymerisable material has "*a low degree of optical absorption*". Support for this feature is provided at page 2, lines 18 and 30 of the specification. Indeed, page 3, lines 8 to 17 of the specification provides further support for these features.

The wording of claim 1 now additionally specifies, each time it mentions an absorption property, that said absorption property is the absorption property "*at the radiating wavelength and for the thickness range specified*". This is because, as a matter of fact, the absorption varies as a function of the wavelength as well as a function of the thickness.

Finally, claim 1 has been amended to specify that the interference pattern generated in the photosensitive film is a *three-dimensional interference pattern*. This is to clarify how a "spatially" varying intensity can be created by said interference and how a 3-D periodic variation in the refractive index (line 5 of the original version of claim 1) can be achieved.

Amendments have been made to claims 2, 3, 8, 11 and 14 to 21 to bring their language into conformity with that of claim 1 as now amended.

Claim 10 has been cancelled because its subject matter has been incorporated into claim 1.

Rejection under 35 USC 103

Claims 1 to 21 stand rejected under this heading as being unpatentable over

WO'439 in combination with applicant's own disclosure (page 2, third paragraph) in combination with Lee *et al.*, Witzgall *et al.* and Patil *et al.*

Applicant stands by the arguments submitted with the response of September 7, 2004 to the first Office Action. However, significant amendments have now been made to the claims in order to clarify further the distinctions over the prior art and the non-obviousness of the claimed invention.

A key contribution made to the art by the method as now claimed is the achievement of as uniform illumination as possible throughout the thickness of the photosensitive film in order to obtain a photonic crystal with parameters which remain as constant as possible throughout the film thickness. The cited prior art documents neither disclose nor suggest the importance of irradiating the film as uniformly as possible throughout its thickness. They also fail to suggest the specific features now defined in claim 1, which are needed to achieve that illumination so that a photonic crystal can be formed having parameters which remain as constant as possible throughout the film thickness.

The passages from WO'439, Witzgall *et al.*, Lee *et al.* and Patil *et al.* which the Examiner has identified do not provide a pointer to the specific combination of features specified in amended claim 1. Accordingly, it is submitted that the rejection under 35 USC 103 does not apply to the amended claims submitted herewith and should be withdrawn.

Double Patenting

The rejection of the claims for obviousness-type double patenting no longer applies in view of the amendments to claim 1 submitted herewith. US Patent 6,358,653

is the US Patent which issued on WO'439, cited in support of the rejection under 35 USC 103. For the reasons discussed above, therefore, the double patenting rejection no longer applies because the invention defined in amended claim 1 is patentably distinct over the claims of US Patent 6,358,653 when taken in combination with Lee *et al.*, Witzgall *et al.* and Patil *et al.* Withdrawal of the rejection is respectfully requested.

Conclusion


It is submitted that claims 1 to 9 and 11 to 21 currently under examination are non-obvious over the prior art. Accordingly, favorable reconsideration of the application is respectfully requested.

If fees in addition to the extension fee are needed, please charge them to deposit account 17-0055.

Respectfully submitted,
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Dated: April 29, 2005

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